

**MICRO TEACHING AND SELF EFFICACY TOWARD MATHEMATICS STUDENTS  
IN MATHEMATICS PROGRAM OF FKIP UMB**

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**Abstract**

For the novice teacher feeling confident in the classroom is a real concern. Without confidence, teachers are less likely to teach well. Research indicates that self efficacy, a person's belief in their own ability to meet expectations, can impact on their success. This concept has implication for students in education faculty who are required to bridge the gap between theory and practice on micro teaching. This study aimed to explore student perceptions of factors that influence their instructional self-efficacy. Data were collected from 47 students in 6<sup>th</sup> semester of Mathematics Program Study of FKIP UMB which took micro teaching subject. The data of students performance was gotten from observations sheets. While the data of students self efficacy toward mathematics was gotten through self efficacy scale. The data was analyzed by using product moment correlation. The result of the research show that there is significant correlation between students self-efficacy toward mathematics with their performance in micro teaching.

Keyword: micro teaching, self efficacy toward mathematics

**INTRODUCTION**

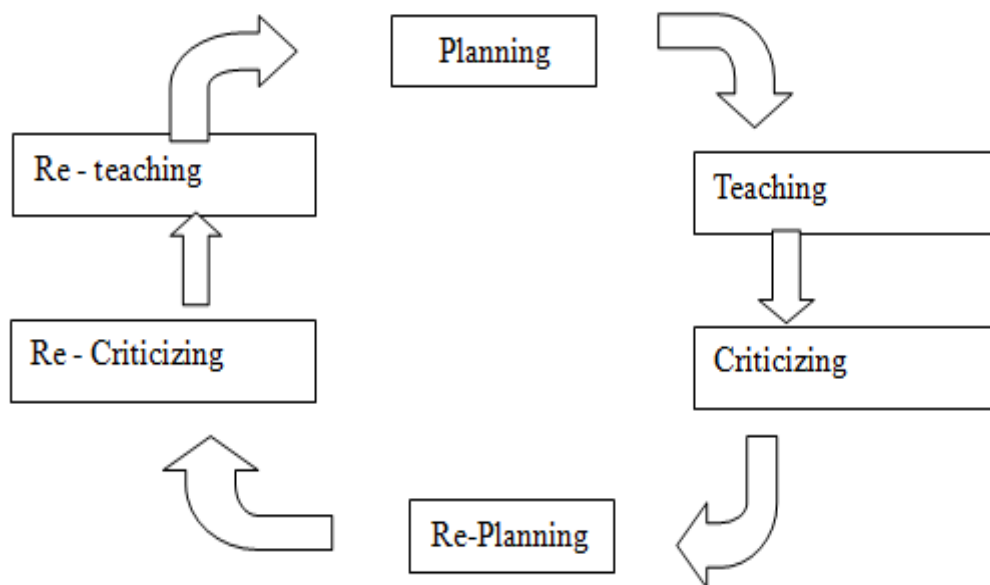
Learning is a complex process and involves many interrelated aspects. Teachers in learning to deal with a number of students with a variety of backgrounds, attitudes and all of it is potential effect on learning outcomes. Therefore, teachers need to create a creative learning and fun for students. To create a creative and fun learning teachers need to master a variety of teaching skills. Each skill has a component, the basic principles and how to use them yourself. Therefore necessary training to help teachers master the various skills.

FKIP Muhammadiyah University of Bengkulu also provide training curriculum needed by prospective teachers to become teacher professional practice. One of the courses that train undergraduate students to teach a variety of skills are micro-teaching courses. Microteaching course is a course that is a place for undergraduate students to practice all the skills taught. On micro teaching undergraduate students trained to teach a particular topic with classmates. However, undergraduate students often feel anxious and not confident to express thoughts verbally, either at the time of having to explain the material or when interacting with students. Therefore it takes the high self-efficacy so that undergraduate students can successfully perform maximally during teaching practice.

## Microteaching in Education

Microteaching is a remarkable factor used in teaching practices of undergraduate students. Microteaching method offers new and different opportunities undergraduate students about the planning and implementation of new teaching strategies. According to Saban (2013) Microteaching has an important place in preparation for the teaching profession because its potential to emphasize the relationship between theory and practice. Micro-teaching is a method that bridges between theory and practice. Micro-teaching is an attempt of students to the knowledge and skills transferred on to the real action.

In micro teaching practice, each student practice teaching with time between 15-20 minutes and the number of students approximately 20 people. Peker (2009) provides an overview of the micro-teaching cycle as in figure 1, is cycle is: process of teaching, criticizing, re-planning and re-criticizing.



In the process of cycle, undergraduate students prepared the lesson plan that the subject is determined before. In teaching stage of cycle, the undergraduate students perform micro lesson to real students that were planned and prepared by them. Also, lecturer are recorded by video camera. After that undergraduate students watch and hear by her/his self from video recording at the end of the course. In critique stage, undergraduate students micro lessons are reviewed, discussed, analyzed and evaluated. Undergraduate students take criticisms and suggestions from the lecturer and their friends. According to suggestions, undergraduate students prepared the lesson plan again and re-teach micro lessons to same group. The end of the cycle, microteaching practices give undergraduate students have opportunity to evaluate their strengths, weaknesses and try to improve weak sides.

## **Self Efficacy Toward Mathematics**

People are said to have high self-efficacy for a task when they believe they possess the capabilities necessary to perform the task successfully. However, if they believe that they do not have the necessary capabilities, then they would be said to have low self-efficacy for that task. Pintrich (2004) believes the future of the society is dependent on the level of motivation and the current progress that its students have made. Research has demonstrated that students with high self efficacy are more likely to seek challenges, persist in the face of those challenges, and adopt effective strategies to mediate those challenges when compared to their classmates with low self efficacy.

Bandura (1997) pointed out that there are four sources, which are involved in self-efficacy judgments: performance accomplishment, vicarious experience, verbal persuasion, and physiological arousal. Performance accomplishment refers to the experience and the level of task mastery, when individuals have successful experiences, these will enhance their self efficacy. Vicarious experience refer to how individuals gain their perceived competence through observing others' behavior. When individuals observe those, with similar ability, achieve successful performance, this will enhance their self efficacy. Verbal persuasion refers to when individuals gain support from the social environment such as from teachers and peers. Physiological arousal refers to individuals efficacy evaluation response through their physiological arousal.

Marzano (2012) Believes that the Self-efficacy is the belief that one has control over one's own life; it's accompanied by a set of skills that include the ability to

- a. Identify long- and short-term aspirations that are personally meaningful and that contribute to one's sense of well-being.
- b. Set concrete long- and short-term goals relative to one's aspirations.
- c. Monitor progress toward long- and short-term goals and revise actions or goals as needed.
- d. Identify, monitor, and change personal beliefs and habits that are impediments to successfully completing one's goals.

Teaching Self-Efficacy In Seven Phases: (Marzano,2012)

Phase 1: In phase one, students identify personal aspirations of interest. Typically, they don't share these with other students; rather, they record them in a journal that's accessible to the teacher only.

Phase 2: During the second phase, students look for role models and mentors.

Phase 3: Whereas phase one encourages students to "dream big" without any limitations, phase three asks them to confront the realities of their aspirations.

Phase 4: This phase directly addresses the fourth self efficacy skill: the ability to identify personal beliefs and habits that get in the way of accomplishing one's goals. It's probably the most confrontational of all the phases. Here, the student might realize that she gets

discouraged easily when positive feedback begins to wane. As a result, she might resolve to work against this tendency.

Phase 5: this phase directly addresses the second self-efficacy skill: the ability to set concrete long- and short-term goals. Students develop written plans that detail the steps they will take to accomplish their goals.

Phase 6: This phase partially addresses the third self efficacy skill: the ability to monitor one's progress. Teachers might ask students to identify something they can accomplish within the next month or two that would be a small step toward their ultimate goal. An effective addition to this phase is for the teacher to ask students to write their small step on a piece of paper and put it in a self-addressed envelope. The teacher then mails these envelopes to students after two months.

Phase 7: In the last phase, students evaluate their overall progress and draw conclusions regarding what they have learned about themselves. This phase is also a time when students can make adjustments in their efforts or time lines.

## **RESEARCH METHOD**

### **Participant**

The participant in this study were 47 undergraduate students who take micro teaching course.

### **Instrument**

To find out the SE students towards mathematics is done by self efficacy scales students who conceived and developed with reference to aspects performance experience, the experience of others, aspects of direct support / social, psychological and affective aspects. Item statements SE students towards mathematics consists of 40 items with four answer options are strongly agree (SS), agrees (S), disagree (TS) and strongly disagree (STS). Neutral response option not used to avoid the safe answer and encourage students to perform alignments answers. This instrument was adopted from Risnanosanti (2010).

Data on student performance in a micro-teaching were taken using observation sheets teaching ability load indicators, namely: the ability to plan learning, open learning ability, the ability to master the material, the ability to use the approach or teaching strategies, classroom management skills, use of language, the ability to utilize learning resources, assessment capabilities, and the ability to close learning activity.

### **Data Analysis**

The Pearson Product Moment Correlation Coefficient ( $r$ ) chosen for this study allowed the researcher to examine a relationship between self efficacy undergraduate student and their performance on micro teaching.

## **RESULT AND DISCUSSION**

The dependent variables are performance undergraduate students in micro teaching as indicated by scoring a standard score of above 31. A standard score or T score of 93 or above represents a preference for that particular element or variable of the performance undergraduate student in micro teaching. A standard score or T score of 31 or below or more represents a low preference for that particular element of the performance undergraduate student in micro teaching. If standard scores or T scores range between 31 and 93, this indicates that there is no high or low preference for that particular element of the performance undergraduate student in micro teaching.

The Pearson Product Moment Correlation coefficient ( $r$ ) was used to see if a relationship existed between the performance undergraduate student in micro teaching and their self efficacy toward mathematics. The significance level was set at .05 ( $p < .05$ ).

These correlation coefficient analyses were utilized to establish if trends existed in the relationship between the dependent variable (performance undergraduate students in micro teaching scores) and the independent variable (undergraduate students self efficacy).

The basic aim of this study was the exploration of the relationship between self efficacy and their performance in micro teaching. The possibility of self efficacy to predict undergraduate students performance was also examined. The analysis of the data confirm earlier findings that undergraduate students have positive self efficacy.

Results of the correlation analysis indicated that mathematics self-efficacy and mathematics achievement were positively related. Students with high mathematics self efficacy were associated with high performance in micro teaching. Additionally, results of the correlation indicated that performance undergraduate students in micro teaching could be significantly predicted by mathematics self-efficacy.

The research on self-efficacy development suggests that efficacy judgments are most malleable in the early stages of mastering a skill and become more set with experience least as long as the context and task remain relatively stable. So it makes sense that early teaching experiences would be important shapers of efficacy judgments. If these early experiences are positive, then new teachers are better able to persist in the face of the inevitable disappointments and discouragements of the first attempts at college teaching. On the other hand, unsuccessful early experiences in teaching as TAs can direct graduate students away from the professoriate. What do we know about encouraging the emerging efficacy beliefs of teaching assistants? Heppner (1994) described a three-credit-hour course for GTAs in the teaching of psychology conducted over two semesters that resulted in improved self-efficacy for teaching. In contrast to the usual finding that mastery experiences are the most important sources of efficacy, Heppner found that about 75% of the influences on efficacy described by the GTAs were forms of verbal feedback, often from their students. The practicum had taught these novice teachers how to use peer consultation to get feedback from students and this process proved a powerful source of efficacy information. In addition, discussion in the practicum helped participants see their fears and anxieties as normal and appropriate. The remaining 25% of the influences on efficacy were categorized as mastery related, such as "coming up with a good way to lecture about a difficult

topic." To improve their mastery, these novice teachers wanted more knowledge about establishing personal teaching philosophies and goals, using learning objectives to guide teaching, developing critical thinking in their students, understanding students developmental needs, facilitating productive discussion and collaborative class projects, and handling unmotivated students as well as the nuts and bolts of planning such as constructing syllabi and assignments. Providing such pedagogical tools helps. Prieto and Meyers (1999) found that GTAs in a national survey who received formal training in teaching had higher self-efficacy scores than GTAs who received no training, regardless of the respondent previous amount of teaching experience. In sum, sense of efficacy is a valuable outcome of early teaching experiences and can be fostered with specific training that provides needed pedagogical knowledge, a variety of forms of feedback, and social support that normalizes the predictable fears of novice teachers.

One of the items that had a significant change in the Teachers Efficacy Scale was: "I am very limited in what I can achieve because a student's home environment is a large influence on his/her achievement." Even though generalize ability is limited because of the small sample size, implications were that after two semesters of teaching experience, more undergraduate student believed they were somewhat limited in their personal power over the home environment than did at the beginning of the study. The other item that demonstrated significance was "The influence of a student's home experiences can be overcome by good music instruction." At the final administration of the Teacher Efficacy Scale (spring), more undergraduate student agreed with the statement or believed the influences of students' home experiences can be overcome with good music instruction.

Although these two items appeared to be in conflict, indications were undergraduate student were changing their views about their personal efficacy and their teaching efficacy. Item #9 evaluated the personal external dimension of self-efficacy. Item #15 was intentionally worded by Gusky & Passaro (1994) to evaluate the teaching-internal dimension of self-efficacy. The results seem to imply that undergraduate student belief in the influence of teaching was higher while their belief in their personal influence was somewhat diminished. One interpretation could be that these undergraduate student were becoming more realistic about what can be controlled through music instruction.

The videotapes provided a visual example of their actual (versus perceived) teaching performance and may have had an effect on levels of efficacy. Persistence, which remained stable throughout the study, may be one reason why ratings of teaching improved during the length of the study, even though the undergraduate student became less confident, or perhaps more realistic in their personal beliefs.

Pearson correlation coefficients were significant between undergraduate student and the three experienced educators' ratings for the teaching episodes for the fall. The summed values provided evidence of undergraduate student having rated themselves less favorably throughout the study than the experienced educators, but the differences were greater in the winter and spring. In an examination of non-significant trends, there was an average difference of only eight percentage points between the undergraduate student and the experienced educators. Items that were more positively rated by the experienced educators were associated with behaviors that may more readily change with teaching experience, including monitoring student learning, allocating time, effective pace, modulating voice and speaks clearly and understandably. Some items that were related less favorably may require more than two semesters of experience to master such as incorporating musicianship, enthusiasm, and a sense of humor. These would be

expected once a higher degree of comfort with basic teaching skills is acquired and undergraduate student may more accurately rate those particular behaviors with more experience. Future research with a larger sample size may yield significant results for more items on this instrument. Findings of the current study are consistent with previous writing in teacher efficacy. Teachers learn to make realistic judgments about their effectiveness in certain contexts and undergraduate student do have fluctuations in efficacy as a result of their undergraduate student experiences. However, findings of this study are somewhat different than new teachers gained confidence in their personal power, but their belief in the power of teaching was diminished. The five antecedents to teacher efficacy were teacher education, teacher experience, system variables, personal variables and causal attributions. The current study was able to study efficacy beliefs in comparison to only one of these antecedents, teacher experience.

Mathematics self-efficacy was a significantly positive predictor of performance undergraduate students. This finding suggests that students who were confident of their performance in mathematics tended to have better performance undergraduate students in micro teaching. Specifically, undergraduate students who were confident that they could do an excellent job on mathematics tests, they could understand the most difficult material presented in mathematics texts, they could teach the most difficult material to their students, and they could do an excellent job on math assignments.

## **CONCLUSION AND SUGGESTION**

The variables used in this study, self-efficacy scores, and performance in micro teaching scores. Data was collected from undergraduate students at Mathematics Program FKIP UMB. The undergraduate students have all of the same classes and lecturer. Performance in micro teaching scores and self-efficacy scores were shown to have a statistically significant correlation for undergraduate students. From the present data, the researcher concludes that how undergraduate students feel about themselves does have a statistically significant correlation with how they expect they can successfully perform

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